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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 December 2009</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>79-122</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>79-122</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to the amendment filed 12/4/2009.

2.   Claims 79-122 are currently pending in this application. Claims 79, 94-96, 111, 112, 116

and 117 are independent claims. In the Amendment filed 12/4/2009, claims 118-122 are newly

added. Claims 79-122 are rejected.

Telephone Interview

3.   While the examiner initiated a telephone interview (3/8/2010) to clarify the questions

with the amendment (filed on 12/4/2009), and to see if an agreement could be made with

applicant's representative to place an application into a condition for allowance, Ms. Walling

indicated that any change to claims should be checked with her clients first. Since an immediate

decision could not be made by applicant's representative, it was agreed that a written

communication would be issued to further prosecute an application.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 79-86, 94-103, 111-112, and 116-119 are rejected under 35 U.S.C. 103(a) as

being unpatentable over U.S. Patent No. 6,701,305 issued to Holt et al. (hereinafter Holt) in view

of U.S. Patent No. 6,006,225 issued to Bowman et al (hereinafter Bowman).

Regarding claims 79, 94 and 95, Holt discloses a method comprising:

storing, in a memory of the one or more server devices, search query-search document associations in a database, each search query-search document association representing a one-to-one pairing of an issued search query and a search document (Holt: col. 6, lns. 11-52)

receiving, by one or more processors of the one or more server devices, a search query (Holt: col. 12, lns. 48-54; fig. 6);

identifying, by one or more the processors of the one or more server devices, a set of search result documents using the received search query (Holt: col. 6, lns. 22-36; col. 12, lns. 54-col. 13, lns. 7); and

Although Holt discloses the method comprising a feature of search query-search document association in the database, Holt does not explicitly disclose a feature of formulating, by one or more processors of the one or more server devices, a search query refinement suggestion. However, such feature is well known in the art as disclosed by Bowman (Bowman: col. 6, lns. 3-32) and it would have been obvious to one with ordinary skill in the art at the time of invention to utilize the teachings of Bowman in the system of Holt in view of improving the search query refinement system.

Additionally, regarding claims 96 and 111, Holt and Bowman disclose a feature of identifying, by one or more processors of the one or more server devices, search result documents in the identified set of search result documents that match stored search documents (Holt: col. 14, lns. 26-54; fig. 6); identifying, by one or more processors of the one or more server devices, for each of the stored search documents that matches one of the search result documents, a query-document association in the plurality of query-document associations and (Holt: col. 13, lns. 50-col. 14, lns. 16; col. 14, lns. 43-54).

Also, regarding claims 112, 116, and 117, Holt and Bowman disclose a feature of

creating, by one or more processors of the one or more server devices, a query source reference

(Holt: col. 14, lns. 16-53).

Regarding claims 80 and 118, Holt and Bowman disclose the method where the

formulating the search query refinement (Bowman: col. 6, lns. 3-32) suggestion comprises:

identifying search documents of the search query-search document association that match

the at least one search result document within the database (Holt: col. 14, lns. 26-54; fig. 6); and

using the issue search queries associated with the identified search documents in the

formulating (Holt: col. 12, lns. 48-col. 13, lns. 7).

Regarding claims 81 and 119, Holt and Bowman disclose the method further comprising:

assigning weights to the search query-search document association in the database based

on relevancies of the search documents to the issued search queries in the search query-search

document association; and storing the weights in the database (Holt: col. 5, lns. 25-46; col. 13,

lnd. 50-col. 14, lns. 53; fig. 6).

Regarding claims 82 and 99, Holt and Bowman disclose the method where the

formulating the search query refinement (Bowman: col. 6, lns. 3-32) suggestion further

comprises:

computing term vectors using terms in the issued search queries of the search query-search document associations and the assigned weights (Holt: col. 4, lns. 3-17; col. 14, lns. 27-55).

Regarding claims 83 and 100, Holt and Bowman disclose the method where the formulating the search query refinement suggestion further comprises:

normalizing the term vectors (Holt: col. 3, lns. 10-35); and

forming clusters of the identified search documents based on distances of each of the normalized term vectors from a common origin (Holt: col. 18, lns. 26-43; fig. 7).

Regarding claims 84 and 101, Holt and Bowman disclose the method where the formulating the search query refinement suggestion further comprises:

multiplying, by a constant, those of the normalized term vectors that include constituent terms with the received search query to downwardly weight the constituent terms to produce an independence of the clusters from the terms of the received search query (Holt: col. 17, lns. 1-56; col. 18, lns. 44-61)

Regarding claims 85 and 102, Holt and Bowman disclose the method further comprising:

assigning a relevance score to the at least one search result document (Holt: col. 18, lns. 44-54; fig. 8),

where the formulating the search query refinement suggestion further

includes:

ranking the clusters based on the relevance score and a number of identified search

documents in the clusters (Holt: col. 18, lns. 54-col. 19, lns. 6; fig. 8).

Regarding claims 86 and 103, Holt and Bowman disclose the method where the

formulating the search query refinement suggestion further comprises:

selecting ones of the clusters based on the ranking (Holt: col. 18, lns. 54-col. 19, lns. 6).

Regarding claim 97, Holt and Bowman disclose the method where the formulating the

search query refinement suggestion comprises:

using the issued search queries associated with the identified query-document

associations in the formulating (Holt: col. 10, lns. 51-65).

Regarding claim 98, Holt and Bowman disclose the method further comprising:

assigning weights to the stored query-document associations based on relevancies of the

search documents to the issued search queries in the query-document associations; and

storing the assigned weights (Holt: col. 5, lns. 25-46; col. 13, lnd. 50-col. 14, lns. 53; fig. 6).

6.   Claims 87-93, 104-110, 113-115, and 120-122 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Holt Bowman, and further in view of U.S. Patent No. 6,026,388 issued

to Liddy et al. (hereinafter Liddy).

Regarding claims 87 and 104, Holt and Bowman disclose the method where the formulating the search query refinement suggestion (Bowman: col. 6, lns. 3-32). Holt and Bowman do not explicitly disclose the method further comprises a feature of computing a centroid for each of the selected clusters; and a feature of determining a score for each unique search query in the selected clusters based on the centroids. However, such features are well known in the art as disclosed by Liddy (Liddy: col. 25, lns. 34-45;col. 26, lns. 14-26) and it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the teachings of Liddy in the systems of Holt and Bowman in view of improving the efficiency of the search refining system.

Regarding claims 88 and 105, Holt and Bowman and Liddy disclose the method where the computing the score for each of the unique search queries comprises:

multiplying a frequency of the issued search queries in the search query-search document associations in the selected clusters times a length of a distance vector measured from the term vectors of the issued search queries in the search query-search document associations to the centroids of the selected clusters (Holt: col. 15, lns. 50-col. 19) and (Liddy: col. 23, lns.20-28; col. 25, lns. 34-45).

Regarding claims 89 and 106, Holt and Bowman and Liddy disclose the method where the formulating the search query refinement suggestion further comprises:

designating a name to each of the selected clusters based on the computed scores of the unique search queries of the selected clusters (Liddy: col. 25, lns. 30-37).

Regarding claims 90 and 107, Holt and Bowman and Liddy disclose the method where the formulating the search query refinement suggestion further comprises:

comparing the computed scores of the unique search queries of the named clusters to a threshold (Liddy: col. 7, lns. 44-51; col. 15, lns. 11-17); and

selecting those cluster names that exceed the threshold to obtain the search query refinement suggestions (Liddy: col. 28, lns. 27-38) and (Bowman: col. 6, lns. 3-32).

Regarding claims 91 and 108, Holt and Bowman and Liddy disclose the method where the formulating the search query refinement suggestion further comprises:

sorting the obtained search query refinement suggestions based on a relevance score assigned to each of the search result documents corresponding to the identified search documents associated with the named clusters and a number of the identified search documents in the named clusters (Holt: col. 18, lns. 54-col. 19, lns. 6) and (Bowman: col. 6, lns. 3-32) and (Liddy: col. 12, lns. 1-10 and 15-20; col. 33, lns. 45-50 and 55-61).

Regarding claims 92 and 109, Holt and Bowman and Liddy disclose the method further comprising:

presenting the sorted search query refinement suggestions to a user (Bowman: col. 13, lns. 55-col. 14, lns. 13; fig. 9) and (Liddy: col. 7, lns. 57-64).

Regarding claims 93 and 110, Holt and Bowman and Liddy disclose the method further comprising:

augmenting the sorted set of search query refinement suggestions with supplemental queries that include one or more of the terms of the search query and negated forms of all terms appearing in the set of search query refinement suggestions, but not appearing in the search query; and presenting the augmented search query refinement suggestions to a user (Bowman: col. 14, lns. 13-24; fig. 9) and (Liddy: col. 7, lns. 44-64; col. 8, lns. 18-28).

Regarding claims 113 and 120, Holt and Bowman and Liddy disclose the method further comprising:

obtaining at least one search result document using the received search query (Holt: col. 6, lns. 22-36; col. 12, lns. 54-col. 13, lns. 7),

where the formulating the search query refinement suggestion further comprises (Bowman: col. 6, lns. 3-32);

comparing the at least one search result document to the retrieved search documents (Holt: col. 13, lns. 50-col. 14, lns. 16; col. 14, lns. 43-54),

identifying the retrieved search documents that match the at least one search result document (Holt: col. 14, lns. 26-54; fig. 6), and

using the issued search queries associated with the identified search documents in the formulating (Holt: col. 12, lns. 48-col. 13, lns. 7).

Regarding claims 114 and 121, Holt and Bowman and Liddy disclose the method where the formulating the search query refinement suggestion further comprises:

computing term vectors using terms in the issued search queries associated with the identified search documents and the assigned weights (Holt: col. 4, lns. 3-17; col. 14, lns. 27-55) and (Liddy: col. 7, lns. 14-51; col. 25, lns. 14-20).

Regarding claims 115 and 122, Holt and Bowman and Liddy disclose the method where the formulating the search query refinement suggestion further comprises:

ranking the search query refinement suggestion based on the computed term vectors (Bowman: col. 6, lns. 3-32) and (Liddy: col. 26, lns. 3-9 and 14-26),

where the method further comprises: presenting the ranked search query refinement suggestion to a user (Bowman: col. 14, lns. 13-24; fig. 9) and (Liddy: col. 7, lns. 57 64; col. 8, lns. 18-28).

Response to Arguments

7.   Applicant's arguments have been fully considered and are persuasive. The prior Non-final Office Action has been withdrawn.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONICA M. PYO whose telephone number is (571)272-8192. The examiner can normally be reached on Mon- Fri 8:00 - 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo
Examiner
Art Unit 2161

03/2010

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Supervisory Patent Examiner, Art Unit 2161